Adverb placement in EFL academic writing

Going beyond syntactic transfer

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The present study looks at adverb placement in expert writing and in first-language and second-language novice spoken and written production. The extent to which first-language (L1) transfer is still present in advanced learners' written production is also investigated. The study uses data from one expert corpus (LOCRA), two native-speaker student corpora (BAWE and LOCNEC) and two learner corpora (VESPA and LINDSEI). The results highlight the importance of taking mode into consideration, as clear distributional differences were found between spoken and written production. In addition, while considerable differences could be noted across L1 background in the spoken data, factors such as presence/absence of auxiliary, verb type (e.g. intransitive, copular/linking) and lexis were found to be most important for predicting adverb placement in the written data. Only very limited evidence of L1 transfer was found in the learners' writing, suggesting that advanced learners have largely mastered the distributional preferences of adverbs.

Keywords: adverb placement, novice writing, L2 writing, L1 transfer, learner corpus research

1. Introduction

The syntactic characteristics of adverbs, particularly single-word adverbs, render them comparatively mobile (Quirk et al., 1985: 491). This, taken together with the fact that cross-linguistic distributional differences have been noted (Dupont,

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2019), means that adverbs lend themselves particularly well to studies of first-language (L1) transfer in English as a Foreign Language (EFL) writing. In fact, a great deal of evidence of cross-linguistic transfer for adverb placement has been found since Selinker's (1969) seminal work on the phenomenon (cf. Odlin, 1989; Jarvis & Pavlenko, 2008). However, there is still work to be done, as previous studies have primarily focused on misplaced adverbs – especially the verb-adverb-object sequence as a diagnostic for what, in a generativist framework, is referred to as 'verb raising' (e.g. White, 1991) – thus not taking the full range of distributional preferences into consideration. Furthermore, previous projects have tended not to distinguish between different types of adverbs, neither in terms of their discourse/pragmatic functions (cf. Rankin, 2010), nor in terms of their distributional preferences across registers, which is problematic given previous findings stressing the importance of these factors for similar structures (cf. Biber et al., 1999; Waters, 2013). In addition, few studies of learner data have used comparable reference corpora that match the learner corpora with regard to text type, length and focus.

The present study aims to address these gaps in the literature by carrying out a systematic analysis of adverb placement in academic writing produced by EFL learners from six different L1 backgrounds (French, Spanish, Norwegian, Swedish, German and Dutch) and in native-speaker (NS) student writing. In the first part of the study, spoken data from the same L1 backgrounds are analyzed to investigate the extent to which mode might have an impact on the syntactic distribution of adverbs. In the second part, we zoom in on the written data and add published academic writing to the comparison. This study design thus not only allows us to investigate possible effects of extralinguistic factors such as L1 background, NS status and level of expertise, but also to explore the impact of a wide array of linguistic features (e.g. verb type, presence/absence of other adverbs, etc.) in order to see how these might affect adverb placement in EFL academic writing. As distributional preferences have been found to be affected by the function the adverb serves in discourse (Dupont, 2019), we have controlled for this factor by limiting our analysis to adverbs denoting epistemic modality, making use of Granath's (2002; based on Jacobson, 1975) list of 14 epistemic adverbs: *maybe*, *perhaps*, *probably*, *surely*, *clearly*, *actually*, *apparently*, *definitely*, *certainly*, *evidently*, *obviously*, *possibly*, *really* and *simply*. The adverb *of course* was also added to the list, owing to its relatively high frequency in academic writing (Biber et al., 1999).

Methodologically, our study uses Hasselgård's (2010) adaptation of Quirk et al.'s (1985: 490–501) syntactic classification of adverb placement, where the tokens were categorized into one of five clausal categories: Initial, Medial 1 (between the subject and any part of the verb phrase), Medial 2 (inside the verb phrase), Medial 3 (between the verb phrase and some other obligatory clausal element) or End position; examples and more detailed descriptions of these categories are provided in

Section 3.2.2. At a general level, it builds on Granger's (2015) Contrastive Interlanguage Analysis framework and on Paquot's (2007) adaptation of Jarvis' (2000) unified framework to investigate cross-linguistic influence for corpus comparisons, as outlined in Section 3.2.1.

These data allow us to study L1 transfer in relation to different typological groupings. The Romance languages (French and Spanish) are closer to one another typologically than to any of the Germanic languages (Swedish, Norwegian, German, Dutch, English), which, in turn, are most similar to one another. However, there are of course typological differences that do not map onto the Romance vs. Germanic split, some of which being of direct relevance to the present study. For example, while French, Spanish and English have subject-verb-object (SVO) word order, the remaining L1s have V2 word order (a more detailed discussion can be found in Section 2.2). These sets of data thus promise fruitful comparisons that will help us get a clearer picture of the extent to which there might still be traces of L1 transfer in academic writing by advanced users of English. The following research questions guide the analysis:

i. To what extent does mode (spoken vs. written production) affect the positional distribution of the adverbs investigated?
ii. What other extralinguistic and linguistic factors help predict the positional distribution of the adverbs investigated?
iii. What (if any) evidence of L1 transfer is found in the academic writing produced by advanced learners of English?

2. Epistemic adverbs and L1 transfer

Section 2.1 provides an overview of epistemic adverbs and previous research on the topic. Section 2.2 details some typological differences between the L1s included that might result in L1 transfer of relevance to the present study.

2.1 Epistemic adverbs

The epistemic adverbs investigated in the present study belong to the more general categories of (epistemic) 'stance adverbials' (Biber et al., 1999) or 'disjunct adverbials' (Quirk et al., 1985). The term 'stance adverbial' is best known through Biber et al. (1999: 549) as adverbials that "convey the speaker/writer's assessment of the proposition in the clause", including the "epistemic conditions of the clause" (e.g. *probably*), the speaker/writer's attitude (e.g. *amazingly*) or the style or wording of the proposition (e.g. *frankly*). Using Quirk et al.'s (1985: 615) terminology, the

type of adverbs investigated belongs to the category known as 'disjunct adverbials', which convey the speaker's "observations on the actual content of the utterance and its truth conditions" or on the "style and form" of the message. The syntactic criteria for distinguishing the category of disjuncts are provided in Quirk et al. (1985); for example, they cannot be the focus of an *it*-cleft (**it was clearly that he was late*), and they are described as "syntactically more detached [than adjuncts] and in some respects 'superordinate' in that they seem to have a scope that extends over the sentence as a whole" (1985: 613).

Some previous studies of stance adverbials in English have compared these to other expressions of stance (e.g. Biber, 2006) showing that there is register variation as well as variation across the types of expressions used to express stance. Against this background, Hunston (2007: 46) argues that although individual stance markers can be quantified in large-scale comprehensive studies of language use, "this work must be complemented by a more qualitative approach". She gives phraseology as a resource for evaluation of variation that could easily be missed in a purely quantitative study of stance markers, arguing that a broad perspective on stance needs to take account of the wide linguistic repertoire of stance marking (see also Larsson, 2017). In this vein, more narrowly oriented studies have focused on one particular stance adverb. For example, Downing's (2001) detailed scrutiny of the functions and meanings of *surely* shows that the placement of the adverb is crucial to its interpretation. Similarly, Diani (2008) explores the functions of *really* in spoken and written academic registers, finding clear connections between position, syntactic role and discourse function.

With regard to studies of adverb usage in L2 English, the main focus has been on overuse and underuse of adverbs, with some studies focusing on investigations of L1 transfer. Granger & Rayson (1998) identified an underuse of disjunct adverbs in English produced by L1 French learners. In contrast, Scandinavian learners have been found to overuse disjuncts (Aijmer, 2002, for Swedish and Hasselgård, 2009, for Norwegian). However, using two of the corpora used in the present study (the Varieties of English for Specific Purposes Database and the British Academic Written English corpus), Hasselgård (2015) found that Norwegian learners overused modal disjuncts ending in *-ly* compared to native speakers, but not disjuncts with other meanings. Some evidence of L1 transfer has also been noted. Although the learners also produced examples of adverbial placement that were ungrammatical in both English and their L1, Osborne (2008) identified some patterns of adverbial placement in L2 argumentative writing that seem to have resulted from transfer of similar usage patterns found in the learners' L1. White (1991) found comparatively frequent use of Subject-Verb-Adverb-Object (S-V-Adv-O) structures in the English production of lower intermediate L1 French writers, which was attributed to L1 transfer. Furthermore, van Vuuren (2017)

investigated possible L1 transfer in a corpus of L1 Dutch learners. Focusing on the clause-initial position, she found that the learners used more initial circumstance and linking adverbials but fewer initial stance adverbials than the novice and expert NS writers. The main feature that could clearly be attributed to transfer was the use of clause-initial circumstance and linking adverbials that were used for local anchoring (i.e. including a referential link to the preceding sentence such as *in that book* or *in the meeting*), mirroring the discourse-linking function of clause-initial adverbials in Dutch.

Based on previous studies, we can thus expect there to be distributional differences across the extralinguistic factors investigated. However, what impact the linguistic variables investigated have on the distribution remains unclear. Moreover, it is not clear to what extent there is still L1 transfer evident with regard to adverb use in the writing of advanced learners, which will also be investigated in the present study.

2.2 Typological differences between the L1s

As mentioned in Section 1, the learners whose texts are included come from six different L1 backgrounds: French, Spanish, Norwegian, Swedish, German and Dutch. As the use of epistemic adverbs is found at the intersection of word order, information structure and stance marking, these adverbs can be expected to present varying difficulties for the different L1 populations under scrutiny (cf. Osborne, 2008; Callies, 2009; Hasselgård, 2009; Larsson, 2017). A brief description of some relevant typological differences with regard to sentence structure and adverb placement in these L1s will now follow, as these differences are likely to be important for our interpretation of the results in relation to possible transfer effects.

In French and Spanish, adverbs are to be placed between a verb and its direct object, unlike in English, a phenomenon that is often referred to as verb-raising (e.g. White, 1991). The other Germanic languages investigated also allow verb-raising; see Example (3). An example to illustrate this from French can be found in (1), with the (ungrammatical) English translation.

(1) Les employés ont **évidemment** le droit de partir plus tôt que prévu.
(*"Employees have **obviously** the right to leave earlier than expected.")

It has been noted in previous work that "[l]earners whose L1 has obligatory verb-raising – Spanish, Italian and French – show the strongest tendency to use V-Adv-O order" (Osborne, 2008: 127). In our study, any traces of L1 transfer of this kind would be found in the Medial 3 position (i.e. between the verb phrase and some other obligatory clausal element; see Section 3.2.2), although only for cases where the element following the verb is a direct object rather than a complement.

Furthermore, Norwegian, Swedish, German and Dutch are all verb-second (V2) languages (unlike English), meaning that an adverb (or full adverbial) placed in the clause-initial position (I) triggers inversion of the subject and the finite verb.[1] Thus, the Medial 1 (M1) position, between the subject and the verb, is blocked, and the Medial 2 (M2) or Medial 3 (M3) positions (in and after the verb phrase, respectively) would have to be used instead, which could potentially lead to these students making less frequent use of the M1 position. An example of the M1-turned-M3 position is shown in (2), along with the Norwegian translation in (3), taken from the English-Norwegian Parallel Corpus (Johansson et al., 1999); the verb is underlined and the adverb is bolded.

(2) I **actually** <u>think</u> she didn't say much about them. (EHA1T)

(3) Jeg <u>tror</u> **faktisk** ikke hun sa stort om den. (EHA1)

Other differences include the richer overt case marking system of German compared to the other Germanic languages under investigation, thus rendering the word order relatively flexible (Hawkins, 1986: 40); nonetheless, the clause-final position (E) is considered marked and almost exclusively attested in certain contexts in spoken language, which could potentially lead the L1 German students to avoid this position (Zifonun et al., 1997). We can also note that while the M2 position can be used in French (e.g. *Elle est **peut-être** partie*), it is dispreferred in Spanish (**(Ella) puede haber **posiblemente** tenido muchos problemas*).

In addition, there are lexis-specific constraints in the L1s within the language families. For example, the adverbs *absolument* ("definitely") and *apparemment* ("apparently") are not likely to be found in-between the subject and the verb (so in M1 or M2 position) in French. Finally, clause-initial uses of the adverbs equivalent to *possibly* and *probably* are less marked in Swedish and Norwegian than in English, which might lead students to transfer this usage pattern into their English production (cf. Larsson, 2017). These predictions for possible L1 transfer are summarized in Table 1.

1. However, due to its etymology, the adverb *kanskje/kanske* ("maybe" or "perhaps") can deviate from the V2 constraint in Swedish and Norwegian when it occurs in initial position, as it originated as a verb phrase (*kan skje/kan ske* – "can happen"). It is thus possible to say *kanskje **hun** har dratt allerede* (verbatim: "maybe **she** has left already"), (see Faarlund et al., 1997: 869).

Table 1. Predictions about syntactic and/or lexico-grammatical L1 transfer

Transfer type	Subtype	FR	SP	NO	SW	DU	GE
Syntactic	SVAO	x	x	x	x	x	x
	<M1			x	x	x	x
	<M2		x				
	<E						x
Lexico-grammatical	<*definitely*, *apparently* in M1 and M2	x					
	>*possibly*, *probably* in I			x	x		

3. Corpora and method

Section 3.1 provides an overview of the corpora used in the present study. The method is described in Section 3.2.

3.1 Corpora

In order to address our research questions, we analyzed learner and expert data from five different corpora: the Varieties of English for Specific Purposes dAtabase (VESPA), the British Academic Written English corpus (BAWE), the Louvain Corpus of Research Articles (LOCRA), the Louvain International Database of Spoken English Interlanguage (LINDSEI) and the Louvain Corpus of Native English Conversation (LOCNEC).

VESPA is a multi-million-word corpus of learner academic writing. It comprises untimed term papers and theses from students who are in their third year of university studies on average from six different mother tongue backgrounds: French, Spanish, German, Swedish, Norwegian and Dutch. As VESPA encompasses academic prose written by advanced learners of English, we are able to answer Osborne's (2008: 144) call for studies of adverb usage in other types of data than argumentative essays.

The texts from two reference corpora – BAWE and LOCRA – provide a benchmark for the analysis. The full BAWE corpus comprises 6.5 million words from a large number of different disciplines collected at British universities (Heuboeck et al., 2008). In order to ensure comparability between VESPA and BAWE, subsets were extracted consisting exclusively of linguistics texts written by EFL learners and NS students, respectively. LOCRA is a three-million-word corpus of research articles that are published in peer-reviewed, top-rated journals. While it includes articles from business, medicine and linguistics, only the linguis-

tics texts were included in the present study to ensure comparability vis-à-vis the texts written by the apprentice writers.

To be able to carry out an investigation across modes in the first part of the study, spoken learner and NS student data from LINDSEI and LOCNEC were added. LINDSEI contains transcribed spoken data from learners of English, with each L1 subset comprising data from 50 interviews made up of three tasks: set topic, free discussion and picture description (Gilquin et al., 2010). LOCNEC is the NS counterpart of LINDSEI (De Cock, 2004). An overview of the texts used from all the corpora can be found in Table 2. It is worth noting that our L1 English and L1 Spanish written subcorpora are somewhat smaller than the other subcorpora.

Table 2. Overview of the material used in this study

Subsets	Written		Spoken		Total	
	Words	Files	Words	Files	Words	Files
Expert	997,557	109	0	0	**997,557**	**109**
English	134,715	51	81,089	50	**199,565**	**101**
Dutch	418,627	67	79,752	50	**498,379**	**117**
German	386,389	120	92,605	50	**478,994**	**170**
French	437,093	98	94,941	50	**532,034**	**148**
Norwegian	417,440	265	89,059	50	**506,499**	**315**
Spanish	146,838	63	64,850	50	**211,688**	**113**
Swedish	661,663	69	71,912	50	**733,575**	**119**
Total	**3,600,322**	**842**	**574,208**	**350**	**4,158,291**	**1,192**

3.2 Method

This section outlines the frameworks of L1 transfer that were applied (3.2.1), the classification schemes used to code for adverb placement (3.2.2) and linguistic context (3.2.3), as well as information about the process of testing for inter-rater reliability (3.2.4).

3.2.1 *Frameworks for the study of L1 transfer*

As mentioned in Section 1, we use Granger's (2015) updated version of the Contrastive Interlanguage Analysis (CIA) model. In brief, the model covers two sets of language varieties: interlanguage (IL) varieties and reference language (RL) varieties. In our study, the six different learner subcorpora serve as our IL varieties and the NS student corpora serve as our RL, along with the expert corpus. Although it is common for studies to only cover one IL variety and one RL variety, Granger

(2015: 11) stresses the importance of comparing several IL varieties (i.e. learner groups with different mother tongues) in order to be able to systematically investigate L1 transfer, which is the approach adopted in the present study.

The study also uses Paquot's (2007) adaptation of Jarvis' (2000) unified framework for assessing transfer. In this model, three types of comparisons are to be carried out: intra-IL-group, inter-IL-group and IL vs. L1 comparisons (Jarvis, 2000; see also Paquot, 2007: 413). Slightly simplified, the framework can be summarized as follows: if a marked feature (such as sentence-initial placement of *possibly*, as in *possibly he did not come*) is found to be recurrent in the IL of one L1 group, but not in the ILs of other L1 groups, and if this feature is used in the first group's L1, then we can conclude that the tendency of sentence-initial placement of *possibly* is due to L1 transfer.

3.2.2 *Categorizing adverb placement*

To categorize the adverbs investigated, the study uses Hasselgård's classification of clausal positions (Hasselgård, 2010: 42ff; based on Quirk et al., 1985: 490–501). There are five main positions in the framework: Initial, Medial 1, Medial 2, Medial 3 and End position; these will be described in turn below.

The initial position, exemplified in (4), is defined as "the position(s) before the obligatory element in the clause"; in practice, this category covers adverbs that are placed "before the subject, or before the verb in cases of S – V inversion or subject ellipsis" (Hasselgård, 2010: 42). In subordinate or coordinated clauses, initial position refers to the position following the conjunction (Quirk et al., 1985: 491), as in Example (5).

(4) In short, **perhaps** there are alternative routes […]. (LOCRA_ LING012–03)

(5) The client is ostensibly engaged in an informing sequence, though **of course** this is more about displaying his prior knowledge. (LOCRA_ LING010–02)

The three clause-medial positions – M1, M2 and M3 – are defined as follows: the M1 position (6) is used for adverbs that are placed "between the subject and any part of the verb phrase"; M2 (7) is the position "after the (first) auxiliary, but before the main verb"; and M3 (8) is used for adverbs placed in "the position between the verb phrase and some other obligatory element, viz. an object, a predicative, or an obligatory adverbial" (Hasselgård, 2010: 42). The clause-final, end position (9) is used for instances where the adverb is placed after all obligatory elements in the clause (Quirk et al., 1985: 498; Hasselgård, 2010: 42).

(6) […] the experimenter **actually** uses direct reported speech to introduce the receiver's prior imagery. (LOCRA_ LING010–05)

(7) […] FL readers may **actually** focus more on modeling global text content […]. (LOCRA_ LING004–04)

(8) Empathy is **surely** as important a human capability as choice […]. (LOCRA_ LING011–02)

(9) This says nothing about the frequency of the individual patterns of change, **of course**. (LOCRA_ LING015–03)

While these categories were relatively straightforward to use, a brief discussion of some exceptional cases will now follow. For tokens that include a non-finite clause, as in (10), and for finite clauses with ellipted subjects (11), it is not possible to distinguish between the I and M1 positions; these were coded as "I", in line with Hasselgård (2010: 44–45). Clauses where the relative pronoun represents the subject were, by contrast, classified as belonging to the corresponding medial position (Hasselgård, 2010: 45); for example, the token in (12) was classified as "M1". For clauses with split infinitives, the *to*-clause is considered a clause with a null subject, meaning that the adverb is categorized as M1 or M2 position (cf. Hasselgård, 2010: 110–111 for similar cases); the token in (13) was classified as "M1".

(10) The most that could have been seen as possible at the time was long-term contacts of some representatives of the two 'camps', **possibly** often interrupted or suspended and then taken up again […]. (LOCRA_ LING009–05).

(11) […] the fact that this idea is founded on the presupposition that knowledge of a common language (Swedish) does not merely give access to the civic domain of rights, duties, and political participation and the economic sphere of the labor market, but is **actually** the ONLY way that immigrants will properly understand a given society […]. (LOCRA_ LING021–02)

(12) There are numerous restrictions on the pivot of a cleft that **simply** do not hold of the remnant in a sluice. (LOCRA_ LING018–03)

(13) The idea of this approach would be to **simply** associate multiple senses with a single word at the level of the lexicon […] (LOCRA_ LING020–03)

In the case of subject extraposition and existential *there*, *it* and *there* were counted as the syntactic subject, meaning that adverbs following *it/there* but preceding the notional subject (Quirk et al., 1985: 1403) are classified as medial. Examples (14) and (15) were thus coded as "M1" and "M3", respectively.

(14) There **certainly** do exist languages in which the causative/inchoative alternation is not morphologically marked […]. (LOCRA_ LING020–03)

(15) […] it is **probably** safe to assume that both of these L2 features are comparatively frequent […]. (LOCRA_ LING017–01)

It should be noted that we only include adverbs that function as stance adverbials at the clause level (Biber et al., 1999: 549), which means that all other instances, such as when the adverb modifies an adjective as part of a noun phrase, as in (16), were excluded.

(16) Now if we accept the **apparently** paradoxical state of affairs whereby the breaking of language norms may be the norm [...]. (LOCRA_ LING005–01)

Furthermore, as our focus is on disjunct adverbials (e.g. ***clearly**, he was late*), any instances of manner adjuncts (e.g. *they can see something **clearly***) were excluded.

3.2.3 *Coding for linguistic context*

In order to attain as clear a picture as possible of the factors that might influence the positional distribution, we opted for a relatively detailed syntactic classification scheme of the linguistic properties of the clause where the adverb is found. The following features were coded for: type of clause, subject length and type, direct object length and type, number of auxiliaries, lexical verb, and presence of other sentence adverbials. Table 3 provides an overview of the features; a more detailed description of these will now follow.

Table 3. Overview of the linguistic features

Feature	Levels
CLAUSE TYPE	Main clause
	Subordinate clause
VERB TYPE	Intransitive
	Monotransitive
	Ditransitive
	Complex transitive
	Linking/copular
SUBJECT/OBJECT LENGTH	Numeric variable
SUBJECT TYPE	Pronoun
	Noun phrase
	Clause
	Zero subject/omitted subject (incl. non-finite clauses)
OBJECT TYPE	Pronoun
	Noun phrase
	Clause
AUXILIARY	Numeric variable
LEXICAL VERB	The infinitival form of the main verb
OTHER SENTENCE ADVERBIALS	Clause-initial position
	Clause-medial position
	Clause-final position

CLAUSE TYPE covers a binary distinction between main clause vs. subordinate clause, where the former is a clause that can logically stand on its own to form a complete sentence containing a subject and a predicate, and the latter cannot stand on its own and is typically formally marked by a subordinating conjunction, a *wh*-element, inversion or a non-finite verb (Quirk et al., 1985: 997–1007). VERB TYPE covers the following verb-complementation patterns: intransitive, monotransitive, ditransitive, complex transitive, and linking/copular (cf. Quirk et al., 1985: 53). Intransitive verbs are not followed by any obligatory element (S-V: *She laughed*). Monotransitive verbs are followed by a direct object (S-V-O: *He left the room*). The ditransitive category comprises clauses where the verb is followed by an indirect and a direct object (S-V-O-O: *They gave the visitor a glass of water*). The complex-transitive category covers clauses with verbs that are followed by an object and either an object complement (S-V-O-C: *Most people consider these books expensive*) or an obligatory adverbial (S-V-O-A: *He put all the flowers upstairs*). Finally, the linking/copular category encompasses clauses where the verb is followed by a complement (S-V-C: *They are lovely people*) or an obligatory adverbial (S-V-A: *He was in the garden*).

SUBJECT LENGTH and OBJECT LENGTH are numeric variables where the number of words of the subject and object is provided, with negation and contracted forms counted as a separate word and compounds counted as two words. SUBJECT TYPE includes the following possible values: pronoun, noun phrase, clause (including *to*-infinitive clauses, *that*-clauses, full relative clauses and gerunds) and zero subject/omitted subject (including non-finite clauses). Similarly, OBJECT TYPE covers the values pronoun, noun phrase and clause.

AUXILIARY is a numeric variable specifying the number of auxiliaries present in the clause where the adverb is. In addition to the full modals (*can*, *could*, etc.), we also count 'marginal modals' (e.g. *need to*, *have to*, *dare (to)*, *ought to*) as auxiliaries for the purpose of the present study (cf. Quirk et al., 1985: 138). Auxiliary uses of BE, DO and HAVE are also included and counted. In the LEXICAL VERB category, the infinitival form of the main verb of the clause where the adverb is found is provided. Finally, any OTHER SENTENCE ADVERBIALS in I, M or E position are noted. Sentence adverbials "qualify, by their meaning, a whole sentence or clause, rather than just part of a clause (such as verb, or a verb and object)" (Quirk et al., 1985: 52).

3.2.4 *The coding procedure and inter-rater reliability*

The classification outlined in Sections 3.2.2 and 3.2.3 was carried out manually, where each author coded their respective L1 data either on their own or aided by a

research assistant.[2] The first author also coded the NS student data and the expert data. The coding scheme developed as part of the present study is available through the IRIS database (https://www.iris-database.org/). The concordance line for each token was extracted and coded. As many of the categories we coded for required the full clause to be visible, we included 200 characters both before and after the token.

While time-consuming and laborious, it was deemed necessary to code the data manually, as the majority of our data are written by learners, thus requiring human inspection and, at times, disambiguation. Example (17) shows a problematic sentence from the L1 Swedish data, in which it is unclear how the dependent clauses relate to the main clause, which in turn lacks a subject.

(17) Perhaps if the test had been reversed, were the child would have been asked to translate an English word into Swedish would have been easier and given a very different outcome. (VESPA-SE_STO0013)

The inter-rater reliability (IRR) of the coding was tested on three occasions: initially for the clausal positions at the very start of the project, then again for the clausal positions after some adjustments had been made to the coding scheme, and then, towards the end of the project, for the linguistic features. 100 randomly selected tokens from the data were included in each test and coded individually by all the raters.

We used Fleiss' kappa (Fleiss, 1971) to assess the agreement between the coders statistically. Somewhat simplified, this measure divides the scores of the agreement between the raters by the scores that could be expected based solely on chance (Fleiss, 1971). The values range from 0 to 1. Based on the scale developed by Landis & Koch (1977), scores between 0–0.20 suggest "poor agreement", 0.20–0.40 suggest "fair agreement", 0.41–0.60: "moderate agreement", 0.61–0.80: "substantial agreement" and scores between 0.81–1.00 denote "almost perfect agreement". In the present study, the software environment *R* (R Core Team, 2019) and the *R* package *irr* (version 0.84.1; Gamer et al., 2012) were used to carry out the tests.

We attained a kappa score of 0.64 ($z = 61.5$) for the first IRR test of the positional coding, suggesting "substantial agreement" using Landis & Koch's (1977) scale. To improve the IRR scores, we analyzed the test results to identify recurring difficulties, discussed problematic cases and made adjustments to the coding scheme. This strategy proved successful, as we attained a kappa score of 0.79 ($z = 74.7$) for the second test of positional coding, which is at the upper end of

2. The second author would like to thank Nicole Hober of the University of Bremen for her invaluable help with the coding of the German EFL data.

"substantial agreement" in Landis & Koch's (1977) terms (0.81 being the cut-off point for "almost perfect agreement").

The third IRR test served to test the nine linguistic features coded for; the kappa score for each feature is presented in Table 4. As can be seen, the scores range from fair agreement (0.22; $z = 14$ for OTHER SENTENCE ADVERBIALS) to almost perfect agreement (0.87; $z = 139$ for LEXICAL VERB).

Table 4. Kappa scores for each linguistic feature

Linguistic feature	Fleiss' kappa score	z	Landis & Koch's scale
CLAUSE TYPE	0.75	34.7	Substantial agreement
VERB TYPE	0.64	43.4	Substantial agreement
SUBJECT TYPE	0.75	45.8	Substantial agreement
SUBJECT LENGTH	0.34	47.4	Fair agreement
AUXILIARY	0.71	38.7	Substantial agreement
LEXICAL VERB	0.87	139	Almost perfect agreement
OBJECT TYPE	0.66	38.8	Substantial agreement
OBJECT LENGTH	0.37	32.8	Fair agreement
OTHER SENTENCE ADVERBIALS	0.22	14	Fair agreement

While we managed to attain relatively high agreement for most of the categories and features coded for, it became clear from the third test that the remaining inter-rater disagreement was difficult to remedy with this many different coders. Therefore, it did not seem advisable to have the data coded by only one researcher. For this reason, we decided to double code all the data (i.e. we had all the data coded by two researchers: the L1 expert and an L1-English speaker research assistant who was hired as part of the project). The first author subsequently went through all the data to check and resolve any remaining discrepancies.

The fact that the results of the IRR tests were far from ideal brings up some methodological and epistemological questions worthy of further discussion (see Larsson et al., forthcoming, for a more detailed account). There is no denying that the coding process and the interim discussions and adjustments of the coding scheme were very time-consuming. Nonetheless, we would like to encourage researchers working on collaborative projects to use (and report on) IRR tests for the analysis, as we believe that it is only through careful and critical examination of categories and classification guidelines that we, as a field, arrive at robust categories and, by extension, more trustworthy and valid results.

4. Results and discussion

In Section 4.1, the spoken data were added to the written data to enable us to investigate the possible impact of mode. In Section 4.2, we focus on the written data and look more closely at how linguistic factors might impact the distribution and to what extent L1 transfer can be detected.

4.1 Investigating differences across modes

A total of 12,814 instances of the adverbs investigated were found in the data. With the invalid tokens excluded (e.g. manner adjuncts and phrasal uses; see Section 3.2.2), 7,737 valid tokens remained in the analysis; the overall frequencies per subcorpus can be found in Appendix A. To get an overview of how these tokens patterned across mode and the other extralinguistic factors, a multiple correspondence analysis (MCA) was fitted using the R package *FactoMineR* (version 1.34; Le et al., 2008); the output can be found in Figure 1. MCAs use a multivariate space reduction technique for exploratory investigations of categorical data. The distance between variables in an MCA indicates degree of similarity – the shorter the distance, the stronger the correlation – arrived at through a conversion technique whereby the variable frequencies are converted into matrices of distances (see e.g. Glynn, 2014; Baayen, 2008: 129).

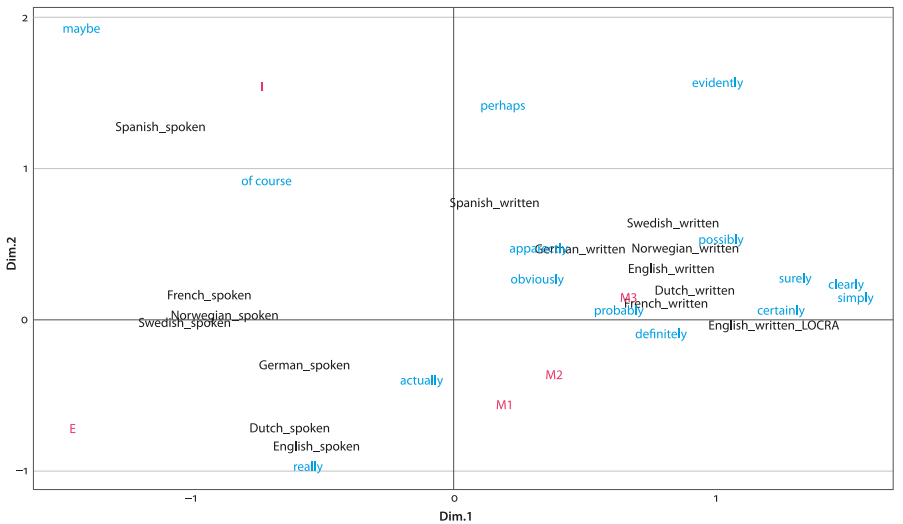

Figure 1. MCA for adverb, position and corpus

As can be seen from the graph, clear differences across mode can be noted in that there is a clear divide between the written and spoken production on the x axis, where all the spoken subcorpora cluster in the two left panels of the graph and all the written subcorpora cluster to the right. A closer look at the data shows that the main reasons for this division are the relative dispreference for the clause-final, E, position in the written data and the comparatively high frequencies of this position noted in the spoken data. In fact, there were only 16 instances of adverbs in the E position in the written part of the dataset, where the three medial positions prevailed. Two examples of *actually* used in the E and M1 positions respectively can be found in (18) and (19).

(18) [...] they often don't have subtitles and I need those **actually**. but well it's it's another kind of cinema [...] (LINDSEI-DU_030)

(19) [...] the fact that the controls **actually** performed better in the TAP could be a result of a biased data set [...] (VESPA-SE_STO0112)

Another important difference between the modes was the more varied use of adverbs found in the written component. Whereas the adverbs *of course*, *really*, *maybe* and *actually* were more strongly associated with spoken production, the written texts were associated with adverbs such as *certainly*, *simply*, *clearly* and *possibly*. It can thus be concluded that mode is an important factor that influences the positional distribution of adverbs, which should be taken into consideration in future studies.

The most noteworthy differences across L1s were found in the spoken data, where the L1 Spanish students' usage stands out due to their comparatively more frequent use of the clause-initial position. A closer look shows that these students make particularly frequent use of the adverbs *maybe* and *perhaps* in this position, as in (20).

(20) [...] or **maybe** you have your own class [...] (LINDSEI_SP021)

While the L1s cluster much more closely together in the written data, minor differences could be noted between the L1 Spanish and L1 German students and the other L1 groups, which we will return to in Section 4.2. Apart from these minor differences, the L1 groups exhibited relatively similar distributional tendencies overall in the written production, which suggests that while L1 is a useful predictor to explain the distribution in the spoken data, it does not explain the variation that remains in the written data particularly well. In the subsequent section, we will therefore expand the analysis to include more linguistic features to help gain a better understanding of the distributional tendencies of the adverbs investigated.

Only very minor potential traces of L1 transfer could be discerned in the data. As can be recalled from Section 2.2, if syntactic L1 transfer is involved, three dif-

ferent outcomes could be expected (in addition to possible verb-raising transfer that will be discussed in the subsequent subsection): (i) the L1 German students make less frequent use of the E position than the other L1 groups, (ii) the L1 Swedish, Norwegian, Dutch and German students make less frequent use of the M1 position than the other L1 groups, and (iii) the L1 Spanish students make less frequent use of the M2 position than the other L1 groups.

However, it turned out that neither (i) nor (ii) was the case. The L1 group that made the least frequent use of the E position were the French and Spanish students (128 and 113 times pmw, respectively, compared to 165 times pmw for the L1 German students). While the L1 Swedish students made the least frequent use of the M1 position (285 times pmw), the French and Spanish students made less frequent use of this position than the other Germanic L1 groups.

By contrast, there might be some evidence of L1 transfer in the Spanish data, as the Spanish students made comparatively infrequent use of the M2 position (227 times per million words – pmw, compared to the next group – the L1 Swedish students – who used this position 322 times pmw). However, when mode was taken into account, it became clear that this difference only extended to the spoken data, as the L1 Swedish students made less frequent use of the M2 position than the L1 Spanish students in writing (186 times pmw and 197 times pmw, respectively).

4.2 Investigating positional distribution in the written data

To investigate which of the linguistic variables (cf. Section 3.2.3) are most important for distinguishing between the adverb positions in the written data, we fitted a Random Forest (RF) using the *party* package (version 1.3–3; Strobl et al., 2008); *ntree* was set to 4,000 and *mtry* to 3 (i.e. the square root of the number of predictors; cf. Levshina, 2015: 297). The numeric variables (AUXILIARY, SUBJECT LENGTH and OBJECT LENGTH) and the OTHER SENTENCE ADVERBIALS category were simplified to binary yes-no variables due to data sparsity. Furthermore, due to comparatively low frequencies, the clause-final position (16 tokens), the verb types 'complex transitive' (24 tokens) and 'ditransitive' (16 tokens), and the adverbs *evidently* (23 tokens) and *surely* (43 tokens) were excluded, leaving a total of 3,579 tokens in the model. The raw per-text frequencies can be found in Appendix B. As only a small number of tokens had a direct object, the interaction between OBJECT: YES/NO and OBJECT TYPE has been tested instead of the two individual variables (cf. Gries, to appear). The interaction between AUXILIARY: YES/NO and VERB TYPE was added, as our exploratory and descriptive statistics indicated that this interaction might be worthwhile to include in the RF (the relative importance of these two variables was checked and confirmed by an initial random for-

est that did not include these interactions). To assess how well the model fit the data, the accuracy measure was computed using a prediction matrix (cf. Levshina, 2015: 299). The results showed that the model has considerably higher accuracy than what could be expected by chance: 0.79. However, it should be noted that the model overpredicts I and M1 and underpredicts M2 and M3 slightly. Figure 2 shows a dotchart displaying the variable importance for each of the predictors included.

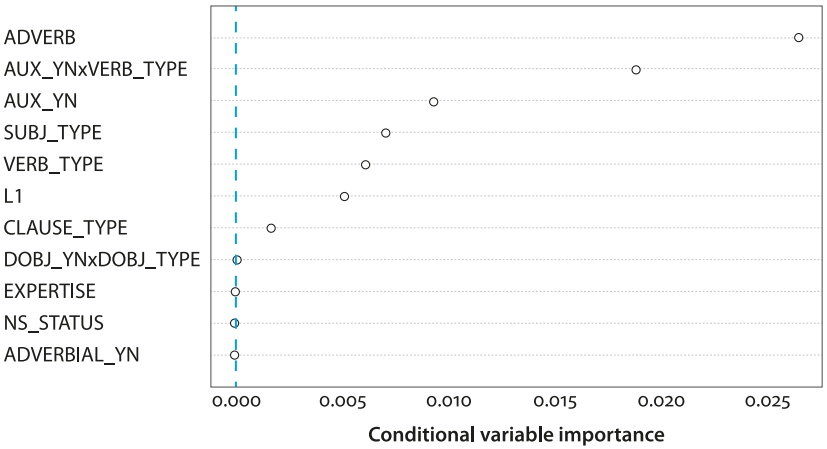

Figure 2. Conditional variable importance of a Random Forest of the I, M1, M2 and M3 positions

As visualized in Figure 2, where the predictors are listed in descending order of importance, the variable importance scores show that ADVERB (0.026) is the most important predictor, followed by the interaction between AUXILIARY: YES/NO and VERB TYPE (0.019). AUXILIARY: YES/NO (0.009), SUBJECT TYPE (0.007), VERB TYPE (0.006), L1 (0.005) and CLAUSE TYPE (0.002) were shown to have relatively low discriminatory power. The factors OTHER SENTENCE ADVERBIALS, LEVEL OF EXPERTISE, NS STATUS and the interaction between OBJECT: YES/NO and OBJECT TYPE proved not to have any discriminatory power, which means that the distributional patterns found in the learner data are not significantly different from the experts' and NS students', thus suggesting that the learners have largely mastered the use of these adverbs. We will therefore instead turn to the linguistic predictors to see how they influence the distribution. The two most important predictors – ADVERB and the interaction between AUXILIARY: YES/NO and VERB TYPE – will be

discussed in more detail below.[3] First, however, a very brief discussion will be provided of the ways in which the other significant predictors – SUBJECT TYPE, L1 and CLAUSE TYPE – affected the positional distribution.

For SUBJECT TYPE, the type that stood out from the others was instances of subject-less clauses. Unlike the other subject types (clausal, pronominal and nominal), such instances were most commonly found in the I position, as in (21), although the other positions were relatively well represented too; an example of a clause with a zero subject where the adverb is placed in M3 position can be found in (22).

(21) [...] participants do not simply change frames and footings, but **actually** embed one within another [...]. (LOCRA_LING014–02.txt)

(22) Furthermore, Aristotle's three modes of persuasion in rhetoric were used to a roughly equal extent, demonstrating **perhaps** that each mode is relevant for persuasion. (VESPA-SE_STO0123)

In terms of differences across L1, a closer look at the data showed that the L1 German and L1 Spanish students' usage stood out from the other L1 backgrounds in that these two L1 groups exhibited comparatively higher frequency of I and lower frequency of the third medial position, M3. This distribution mirrors the distribution in the NS students' spoken distribution, thus potentially indicating a potential lack of register awareness. It should be kept in mind, however, that the L1 Spanish written subset is considerably smaller than those of the other L1 groups, which means that these results will have to be revisited in more large-scale studies. Finally, the investigation of the impact of CLAUSE TYPE (main vs. subordinate) showed that the M2 position is the most frequent position used for adverbs occurring in subordinate clauses, whereas main clauses exhibit a more even distribution across positions.

We will now turn to a more detailed discussion of the most important predictors, starting with the ADVERB category. The results are shown in Figure 3 in the form of a stacked barplot with the raw frequencies printed out on the bars.

As can be seen from the graph, there are clear inter-lexical differences in the data (i.e. in both learner and NS writing), which highlights the importance of taking lexis into consideration for grammars and textbooks dealing with adverb placement. Nonetheless, there are also some general trends in the data. For example, with one exception (namely the adverb *maybe*), the three medial positions are more frequent than the I position for all the adverbs in the written data. For the

3. As expertise (published writers vs. apprentice writers) and NS status (NS vs. EFL learner) proved not to have any discriminatory power, the data from all corpora are grouped together in this section.

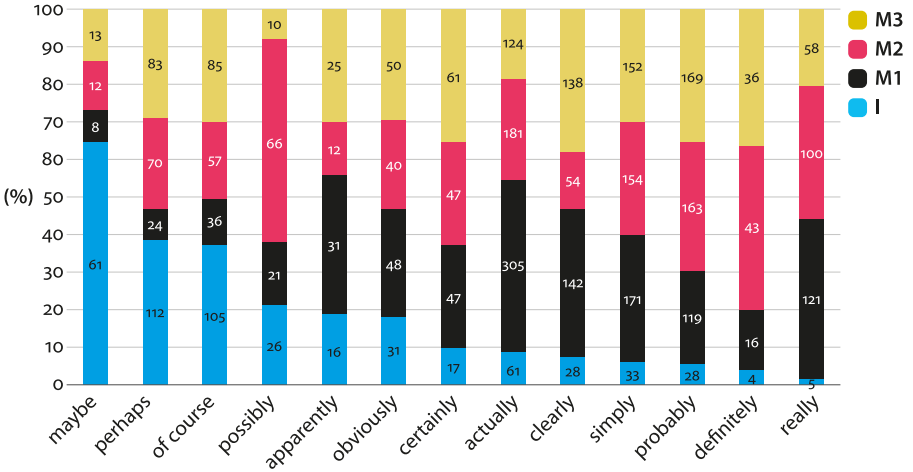

Figure 3. Distribution of adverbs across the clausal positions (raw frequencies inside the bars)

adverbs *actually*, *certainly*, *clearly*, *definitely*, *obviously*, *possibly*, *probably*, *really* and *simply*, the I position makes up less than 10 percent of the data. Four of these adverbs – *definitely*, *probably*, *really* and *simply* – were particularly infrequently found in the I position. A closer look at the data showed that all the instances of *definitely* and *really* in I position were found in coordinated clauses, as exemplified in (23) and (24). This was the case for the majority of the instances for *simply* as well, although there were a few cases where this adverb was used (felicitously) in sentence-initial position in expert writing, as shown in (25), where *simply* is modified by *quite*.

(23) They are necessary for the quality of communication, and **definitely** improve the fluency of speech [...]. (VESPA-FR_UCL0036)

(24) Therefore the same conflict can be brought up several times during the movie and never **really** come to an end until the resolve of the major conflict. (VESPA-SE_STO0023-LING-01.tagged3.xml)

(25) Quite **simply**, our home language was not being validated by the children's American peer groups [...]. (LOCRA_LING022–01)

As can be recalled from Section 2.2, the typological differences between the L1s included provided an opportunity for investigating to what extent there might be traces of L1 transfer in the writing of the students whose texts are included. Two cases where there might be lexico-grammatical transfer from the students' L1 will be discussed further below.

First, as Swedish and Norwegian are somewhat more flexible with regard to adverb placement than English and allow for the translational equivalent of *probably* (i.e. *möjligen*/*muligens*) to be placed in clause-initial position, such uses by L1 Swedish or L1 Norwegian students could possibly indicate L1 transfer (Faarlund et al., 1997: 874). The translational equivalent of the semantically very similar adverb *possibly* follows the same pattern, which might influence how it is used in English (Larsson, 2017). However, only a total of four such instances of this marked use of *probably* and *possibly* (exemplified in (26) and (27) below) were found in the L1 Swedish and L1 Norwegian data, which is fewer than in the L1 German data, thus indicating that there is no wide-spread transfer effect for these adverbs for the L1 Swedish and L1 Norwegian groups.

(26) **Probably**, a study into this category would find factors [...].
(VESPA-NO_ UIO0096-LIN-03)

(27) **Possibly**, the position of the tongue in the mouth makes it easier to follow with the /t/ [...]. (VESPA-SE_ STO0029)

Second, the adverbs *absolument* ("definitely") and *apparemment* ("apparently") are not likely to be found in the M1 or M2 positions (i.e. in-between the subject and the verb) in French, which, if there is L1 transfer, could be hypothesized to lead the L1 French students to avoid these positions when using these adverbs in English. However, while the frequencies are low, a closer look at the data seems to counter this hypothesis, as the L1 French students use these adverbs more or less equally frequently as the other L1 groups: the equivalents of *definitely* and *apparently* were used in the M1 or M2 positions 56 percent (9/16) and 54 percent (7/13) respectively in the L1 French data, compared to 58 percent (43/74) and 41 percent (14/34) respectively in the data from the other L1s.

We will now turn to the second-most important variable: the interaction between AUXILIARY: YES/NO and VERB TYPE. The distribution is summarized in a Mosaic plot in Figure 4: the proportional distribution of presence/absence of auxiliaries is displayed on the y axis and the proportion of tokens for each position is shown on the x axis. As is clear from the graph, some systematic patterns emerged from the data. The first thing to note is that if there are one or more auxiliaries, the adverb is most likely to be placed in M2 position, as exemplified in (28).

(28) Some points might **of course** become clearer [...] thanks to the work of linguists [...]. (VESPA-FR_UCL036)

While presence of auxiliaries is a prerequisite for the M2 position (which explains the perfect prediction), we can note that it is very unlikely that adverbs occur in the M3 position when there is an auxiliary. Although the preference is somewhat less strong for the I and M1 positions, it is still considerably more common for

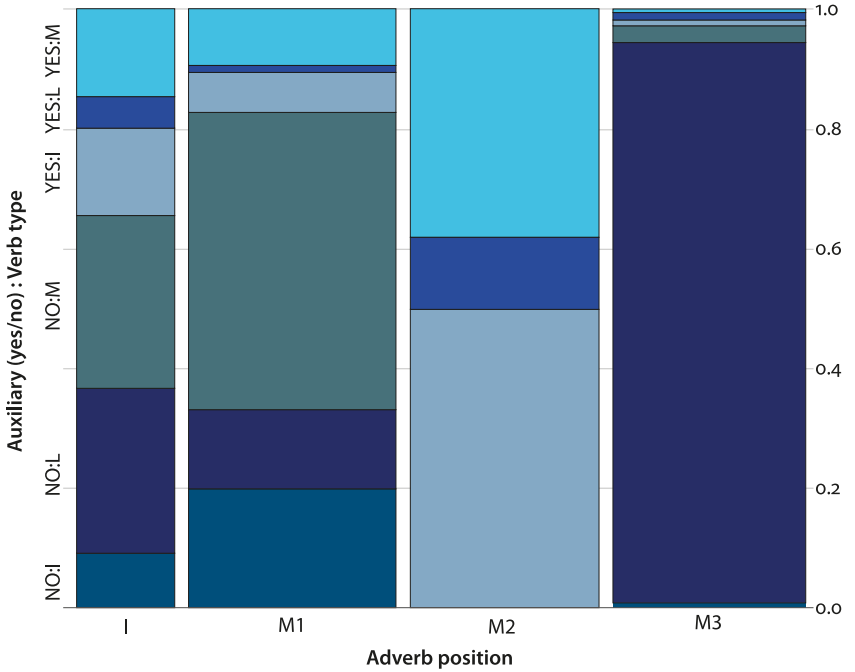

Figure 4. Mosaic plot of the interaction between presence/absence of auxiliary and verb type per position

adverbs to be placed in M2 position if that is an option (i.e. if there is an auxiliary). Put more simply, if there is an auxiliary in the clause, the adverb tends to be placed in M2 position (i.e. in-between the auxiliary and the verb). The same pattern holds true also for the cases where there is more than one auxiliary.

While the majority of learners whose papers are included in the present study seem to have internalized this syntactic preference, there were some instances where the adverb is placed in the M3 position even though there is an auxiliary. A closer look at these instances showed that they can be placed on a scale from marked (i.e. unexpected) to acceptable, as exemplified by (29) (marked) and (30) (acceptable). No single L1 group's usage stood out here, suggesting that these uses are more likely to be due to somewhat lacking proficiency in English rather than L1 transfer.

(29) ?? [T]here have been **apparently** initial observations as well as conceptual and theoretical considerations [...] (VESPA-GE_rpa1.g.fr.031)

(30) It would be expected **perhaps** that in articles concerned with religion it would not be as necessary to use English loanwords. (VESPA-SE_STO0114)

Although the other positions are certainly possible, the M3 position seems to be the default position when the adverb is found in a clause containing a linking verb (e.g. BE, SEEM and APPEAR), as in (31) and (32).

(31) Therefore, from a pedagogical point of view, there is **clearly** a need for research that helps to identify the types of learning task that provide optimal opportunities for L2 vocabulary learning. (LOCRA_018–04)

(32) [...] it is **probably** not the be-all-and-end-all of lexical semantics. (VESPA-FR_UCL0020)

When there is no auxiliary in the clause, adverbs that occur in clauses with intransitive and monotransitive verbs tend to be placed in the M1 or M2 positions, and all three of the most common verb types are found in the I position.

As the M3 position in monotransitive constructions would be where we would find instances of verb raising (i.e. SVAO constructions), this seemed to be a good place to look at whether there is syntactic transfer. However, no clear evidence of wide-spread L1 transfer was found in the data, as the results show that there were only a handful of instances of syntactic transfer (in the form of verb raising) in the data. One example from the L1 French and L1 Spanish subcorpora respectively can be found in (33) and (34). The remaining instances of M3+monotransitive tended to be instances of clausal direct objects, as in (35).

(33) However, the writer has **obviously** the duty to give the results of the game. (VESPA-FR_UCL0019)

(34) This indicates the L1 Spanish speakers have **probably** less self-reliance (VESPA-SP_UBA0190)

(35) We realize, **of course**, that issues like switching between languages [...] are not trivial [...]. (LOCRA_019–02)

Overall, we can thus conclude that only minor traces of L1 transfer could be found in the data. Contrary to what has been noted in previous studies at lower levels of proficiency (e.g. Osborne, 2008), these results, taken together with the fact that NS status and expertise proved not to have any explanatory power in the model, thus suggest that adverb placement is not an area that the advanced learners whose texts are included in the study struggle with in their writing.

5. Conclusion

The present study has mapped out the positional distribution of a set of 15 epistemic adverbs in expert writing and novice production, focusing primarily on the

written data, and in doing so, investigated to what extent any traces of L1 transfer may still be visible in advanced learners' texts. The first part of the study, where the spoken data was added for reference, showed that there are clear differences across mode, with the clause-final position being used almost exclusively in the spoken data. Certain differences across L1s were also noted in the spoken data; for example, the Spanish students made particularly frequent use of the clause-initial position. However, while some minor differences between the L1s were found in the written data as well, we had to turn to other factors to obtain a clearer picture of what seemed to affect the positional distribution in these data.

In investigating the surrounding linguistic context, we were able to complement and extend previous descriptive accounts of adverb placement (e.g. Quirk et al., 1985; Biber et al., 1999). With the linguistic features added to the extralinguistic features, it became clear that two of the extralinguistic factors, NS status and level of expertise in academic writing, did not have any discriminatory power, which suggests that, overall, the learners whose texts are included in the study use the adverbs in a target-like manner. This finding also highlights the importance of not limiting the study to language errors, as has been the case in some previous studies. Instead, we found that while all adverbs except for *maybe* are found most frequently in one of the three clause-medial positions, there is clear inter-lexical variation (i.e. the distribution varies across different adverbs), which suggests that a broader view of "adverb placement", one that also takes lexis into consideration, is called for in grammars and textbooks, where adverbs tend only to be treated briefly under the general heading of adverbials (see e.g. Celce-Murcia & Larsen-Freeman, 1999). The results also showed that the interaction between presence/absence of auxiliary and verb type (e.g. intransitive, linking/copular) plays a role in determining which position the adverb is most likely to be placed in: if there are one or more auxiliaries, the most expected position for the adverb to occur in, with regard to frequency, is M2 (i.e. in-between an auxiliary and the main verb); if there is a linking verb and no auxiliary, then the M3 position (i.e. after the main verb) is the expected position.

With regard to possible remaining traces of L1 transfer, we found next to no evidence of syntactic transfer using Jarvis' (2000) model, as the predictions made based on the typological differences between the languages proved not to affect these students' English production noticeably compared to the other L1 groups or the reference varieties. The Dutch, German, Swedish and Norwegian students did not make less frequent use of the M1 position overall and the German students were not the ones who made the least frequent use of the E position. While the Spanish students used the M2 position comparatively infrequently in their spoken production, as predicted based on their L1 background, this did not extend

to their writing. Furthermore, although some L1 transfer could be noted for the French and Spanish-speaking students in their use of the M3 position before a direct object, this only extended to a handful of instances. With regard to lexico-grammatical transfer, the same picture emerged, where no clear evidence of transfer could be discerned. The Swedish and Norwegian students' use of *possibly* and *probably* in the I position did not stand out vis-à-vis the other L1 groups, nor did the French students' use of *definitely* and *apparently* in the M1 and M2 positions. Moreover, the marked uses of adverbs noted for example in the M3 position when the M2 position would have been more expected (e.g. *there have been **apparently** initial observations*) were not produced more frequently by any L1 or language family, which suggests that these uses are not due to L1 transfer, and can then instead be viewed as general features of learner language and/or of somewhat lacking proficiency in English.

The results thus suggest that unlike intermediate learners whose production has been investigated in previous studies (e.g. Osborne, 2008), these students seem to have reached an advanced enough level that transfer is no longer as likely to occur. By extension, this means that explicit training in English at lower levels seems to have helped students' usage become more target-like – even for a grammatical category such as adverbs that lends itself well to lexical, syntactic and lexico-grammatical transfer from the students' L1. It is therefore useful for EAP instructors to be aware of typological differences between L1 groups to be able to adapt the teaching of sentence structure to meet their students' needs. The differences found across mode along with the distributional tendencies noted in the data could also serve to inform teaching and nuance the, at times, somewhat categorical view of correct vs. incorrect adverb placement found in the literature.

The coding procedure, while somewhat time-consuming, proved fruitful for investigating adverb placement. Since the linguistic factors (e.g. type of adverb) generally proved to be better predictors of adverb placement than the extralinguistic factors, the study highlighted the importance of not limiting the analysis to commonly studied extralinguistic factors such as NS status. Furthermore, although tests of inter-rater reliability are standard practice in neighboring fields such as Second Language Acquisition, they are surprisingly uncommon in Learner Corpus Research; we hope that our study has shown why it is important to apply tests of inter-rater reliability in projects with multiple coders (see also Larsson et al., forthcoming).

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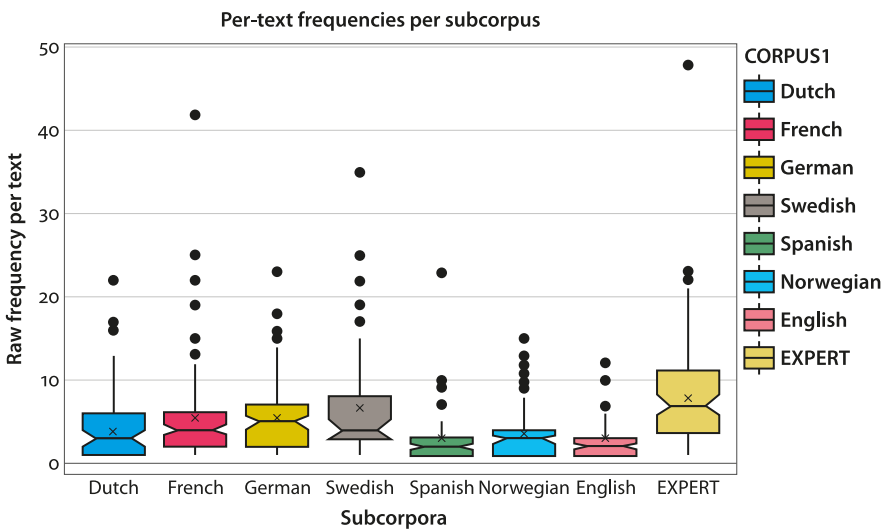
Appendix A. Valid tokens per L1 and mode

Subcorpora	Spoken		Written	
	Raw	Per 10,000 words	Raw	Per 10,000 words
Dutch	752	94.3	302	7.2
English	885	109.1	111	8.2
French	349	36.8	588	13.5
German	699	75.5	603	15.6
Norwegian	538	60.4	714	17.1
Spanish	248	38.2	106	7.2
Swedish	565	78.6	428	6.5
Expert	NA	NA	849	8.5
Total	**4036**	**70.3**	**3701**	**10.3**

Appendix B. Raw per-text frequencies of adverbs in the written data across the different L1s



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